[6450-01-P]

DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

[Case No. RF-020]

Decision and Order Granting a Waiver to Sub-Zero from the Department of Energy Residential Refrigerator and Refrigerator-Freezer Test Procedures

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Decision and Order.

SUMMARY: The U.S. Department of Energy (DOE) gives notice of the decision and order (Case No. RF-020) that grants to Sub-Zero, Inc. (Sub-Zero) a waiver from the DOE electric refrigerator and refrigerator-freezer test procedures for determining the energy consumption of residential refrigerator-freezers for the basic models set forth in its petition for waiver. Under today's decision and order, Sub-Zero shall be required to test and rate its refrigerator-freezers with dual compressors using an alternate test procedure that takes this technology into account when measuring energy consumption.

DATES: This Decision and Order is effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

FOR FURTHER INFORMATION CONTACT: Mr. Bryan Berringer, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-0371,

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SUPPLEMENTARY INFORMATION: In accordance with Title 10 of the Code of Federal Regulations (10 CFR 430.27(l)), DOE gives notice of the issuance of its decision and order as set forth below. The decision and order grants Sub-Zero a waiver from the applicable residential refrigerator and refrigerator-freezer test procedures found in 10 CFR part 430, subpart B, appendix A1 for certain basic models of refrigerator-freezers with dual compressors, provided that Sub-Zero tests and rates such products using the alternate test procedure described in this notice. Today's decision prohibits Sub-Zero from making representations concerning the energy efficiency of these products unless the product has been tested consistent with the provisions and restrictions in the alternate test procedure set forth in the decision and order below, and the representations fairly disclose the test results.

Distributors, retailers, and private labelers are held to the same standard when making representations regarding the energy efficiency of these products. 42 U.S.C. 6293(c).

Issued in Washington, DC, on January 30, 2012.

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Kathleen B. Hogan
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

Decision and Order

In the Matter of: Sub-Zero, Inc. (Case No. RF-020)

I. *Background and Authority*

Title III, Part B of the Energy Policy and Conservation Act of 1975 (EPCA), Pub. L. 94-163 (42 U.S.C. 6291-6309, as codified) established the Energy Conservation Program for Consumer Products Other Than Automobiles, a program covering most major household appliances, which includes the residential electric refrigerators and refrigerator-freezers that are the focus of this notice.[1] Part B includes definitions, test procedures, labeling provisions, energy conservation standards, and the authority to require information and reports from manufacturers. Further, Part B authorizes the Secretary of Energy to prescribe test procedures that are reasonably designed to produce results which measure energy efficiency, energy use, or estimated operating costs, and that are not unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) The test procedure for residential electric refrigerators and refrigerator-freezers is set forth in 10 CFR part 430, subpart B, appendix A1.

DOE's regulations for covered products contain provisions allowing a person to seek a waiver from the test procedure requirements for a particular basic model for covered consumer products when (1) the petitioner's basic model for which the petition for waiver was submitted contains one or more design characteristics that prevent testing according to the prescribed test procedure, or (2) when prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics as to provide materially

[1] For editorial reasons, upon codification in the U.S. Code, Part B was re-designated Part A.

inaccurate comparative data. 10 CFR 430.27(a)(1). Petitioners must include in their petition any alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption characteristics. 10 CFR 430.27(b)(1)(iii).

The Assistant Secretary for Energy Efficiency and Renewable Energy (the Assistant Secretary) may grant a waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 430.27(l). Waivers remain in effect pursuant to the provisions of 10 CFR 430.27(m).

Any interested person who has submitted a petition for waiver may also file an application for interim waiver of the applicable test procedure requirements. 10 CFR 430.27(a)(2). The Assistant Secretary will grant an interim waiver request if it is determined that the applicant will experience economic hardship if the interim waiver is denied, if it appears likely that the petition for waiver will be granted, and/or the Assistant Secretary determines that it would be desirable for public policy reasons to grant immediate relief pending a determination on the petition for waiver. 10 CFR 430.27(g).

II. *Sub-Zero's Petition for Waiver: Assertions and Determinations*

On September 6, 2011, Sub-Zero submitted a petition for waiver and application for interim waiver (petition) from the test procedure applicable to residential electric refrigerators and refrigerator-freezers set forth in 10 CFR Part 430, subpart B, appendix A1. Sub-Zero is designing new refrigerator-freezers that incorporate dual compressors. In its petition, Sub-Zero seeks a waiver from the existing DOE test procedure applicable to refrigerators and refrigerator-

freezers under 10 CFR Part 430 for Sub-Zero's dual compressor products. Sub-Zero states that the test procedure was designed to test independent, sealed systems while Sub-Zero's dual compressor products have shared systems. Sub-Zero further states that it may not be possible to use the DOE test procedure for these products, or that use of the DOE test procedure would provide inaccurate results. In its petition, Sub-Zero set forth an alternate test procedure developed in conjunction with an independent test laboratory. DOE did not receive any comments on the Sub-Zero petition.

The DOE test procedure for dual compressor systems assumes independent, sealed systems, while Sub-Zero dual compressor refrigerators have shared systems. As a result, it is not possible to test these products using the DOE test procedure, and use of the test procedure would provide test results so unrepresentative as to provide materially inaccurate comparative data. Sub-Zero worked with an independent testing laboratory to develop a test procedure that would accurately measure the energy consumption of its dual compressor products while alleviating the testing difficulties, and submitted the results as an alternate test procedure. DOE reviewed the alternate procedure and determined that it will alleviate the testing problems associated with Sub-Zero's implementation of a dual compressor system while accurately measuring the energy consumption of these dual compressor products.

III. *Consultations with Other Agencies*

DOE consulted with the Federal Trade Commission (FTC) staff concerning the Sub-Zero petition for waiver. The FTC staff did not have any objections to granting a waiver to Sub-Zero.

IV. *Conclusion*

After careful consideration of all the material that was submitted by Sub-Zero and consultation with the FTC staff, it is ordered that:

(1) The petition for waiver submitted by the Sub-Zero Inc. (Case No. RF-020) is hereby granted as set forth in the paragraphs below.

(2) Sub-Zero shall be required to test and rate the following Sub-Zero models according to the alternate test procedure set forth in paragraph (3) below.

700TCI
700TR
736TCI
736TCIE
736TR
736TRE
BI-30U/O
BI-30U/S/PH
BI-30U/S/TH
BI-30UA/O
BI-30UA/S/PH
BI-30UA/S/TH
BI-30UG/O
BI-30UG/S/PH
BI-30UG/S/TH
BI-36S/O
BI-36S/S/PH
BI-36S/S/TH
BI-36U/O
BI-36U/S/PH
BI-36U/S/TH
BI-36UA/O
BI-36UA/S/PH
BI-36UA/S/TH
BI-36UFD/O
BI36UFD/S/PH

BI36UFD/S/TH
BI-36UG/O
BI-36UG/S/PH
BI-36UG/S/TH
BI-42S/O
BI-42S/S/PH
BI-42S/S/TH
BI-42SD/O
BI-42SD/S/PH
BI-42SD/S/TH
BI-42SID/O
BI-42SID/S/PH
BI-42SID/S/TH
BI-48S/O
BI-48S/S/PH
BI-48S/S/TH
BI-48SD/O
BI-48SD/S/PH
BI-48SD/S/TH
BI-48SID/O
BI-48SID/S/PH
BI-48SID/S/TH
ID-36CI
IT-27CI
IT-30CI
IT-30CIID
IT-36CI
IT-36CIID
PRO48
PRO48G
PRO48HAG

(3) Sub-Zero shall be required to test the products listed in paragraph (2) above according to the test procedures for electric refrigerator-freezers prescribed by DOE at 10 CFR part 430, appendix A1, except that, for the Sub-Zero products listed in paragraph (2) only, replace the multiple defrost system section 5.2.1.4 of Appendix A1 with the following:

5.2.1.4 Dual Compressor Systems with Dual Automatic Defrost. The two-part test method in section 4.2.1 must be used, and the energy consumption in kilowatt-hours per day shall be calculated equivalent to:

$$ET = (1440 \times EP1 / T1) + \sum_{i=1}^{D} [(EP2_i - (EP1 \times T2_i / T1)) \times (12 / CT_i)]$$

Where:

• 1440 = number of minutes in a day

• ET is the test cycle energy (kWh/day);

• i is the variable that can equal to 1,2 or more that identifies the compartment with distinct defrost system;

• D is the total number of compartments with distinct defrost systems;

• EP1 is the dual compressor energy expended during the first part of the test (it is calculated for a whole number of freezer compressor cycles at least 24 hours in duration and may be the summation of several running periods that do not include any precool, defrost, or recovery periods);

• T1 is the length of time for EP1 (minutes);

• EP2i is the total energy consumed during the second (defrost) part of the test being conducted for compartment i. (kWh);

• T2i is the length of time (minutes) for the second (defrost) part of the test being conducted for compartment i.

• CTi is the compressor on time between defrosts for only compartment i. CTi for compartment i with long time automatic defrost system is calculated as per 10 CFR part 430 subpart B appendix A1 clause 5.2.1.2. CTi for compartment i with variable defrost system is calculated as per 10 CFR part 430 subpart B appendix A1 clause 5.2.1.3. (hours rounded to the nearest tenth of an hour).

Stabilization:

The test shall start after a minimum 24 hours stabilization run for each temperature control setting.

Steady State for EP1:

The temperature average for the first and last compressor cycle of the test period must be within 1.0°F (0.6°C) of the test period temperature average for each compartment. Make this determination for the fresh food compartment for the fresh food compressor cycles closest to the start and end of the test period. If multiple segments are used for test period 1, each segment must comply with above requirement.

Steady State for EP2i:

The second (defrost) part of the test must be preceded and followed by regular compressor cycles. The temperature average for the first and last compressor cycle of the test period must be within 1.0°F (0.6°C) of the EP1 test period temperature average for each compartment.

Test Period for EP2i, T2i:

EP2i includes precool, defrost, and recovery time for compartment i, as well as sufficient dual compressor steady state run cycles to allow T2i to be at least 24 hours. The test period shall start at the end of a regular freezer compressor on-cycle after the previous defrost occurrence (refrigerator or freezer). The test period also includes the target defrost and following regular freezer compressor cycles, ending at the end of a regular freezer compressor on-cycle before the next defrost occurrence (refrigerator or freezer). If the previous condition does not meet 24 hours time, additional EP1 steady state segment data could be included. Steady state run cycle data can be utilized in EP1 and EP2i.

Test Measurement Frequency

Measurements shall be taken at regular interval not exceeding 1 minute.

(4) Representations. Sub-Zero may make representations about the energy use of its dual compressor refrigerator-freezer products for compliance, marketing, or other purposes only to the extent that such products have been tested in accordance with the provisions outlined above and such representations fairly disclose the results of such testing.

(5) This waiver shall remain in effect consistent with the provisions of 10 CFR 430.27(m).

(6) This waiver is issued on the condition that the statements, representations, and documentary materials provided by the petitioner are valid. DOE may revoke or modify this waiver at any time if it determines the factual basis underlying the petition for waiver is incorrect, or the results from the alternate test procedure are unrepresentative of the basic models' true energy consumption characteristics.

(7) This waiver applies only to those basic models set out in Sub-Zero's September 6, 2011 petition for waiver. Grant of this waiver does not release a petitioner from the certification requirements set forth at 10 CFR part 429.

Issued in Washington, DC, on January 30, 2012.

Kathleen B. Hogan
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

[FR Doc. 2012-2564 Filed 02/03/2012 at 8:45 am; Publication Date: 02/06/2012]